

REMARKS

The Office Action dated November 20, 2009 has been received and carefully noted. The above amendments to the claims, and the following remarks, are submitted as a full and complete response thereto.

By this Response, claims 1 and 6 have been amended to more particularly point and distinctly claim the subject matter of the present invention. Support for these amendments may be found in the specification, for example, at page 12, lines 18-27. Claims 7 and 9 are cancelled, without prejudice or disclaimer. No new matter has been added.

Claim 4 has been withdrawn from consideration. Applicants respectfully submit claims 1-3, 5, 6, and 8 for consideration.

In view of the above amendments and the following remarks, Applicants respectfully request reconsideration and timely withdrawal of the pending rejections to the claims for the reasons discussed below.

Claim Rejection - 35 U.S.C. 102/103

In the Office Action, claims 1-3 and 5 were rejected under 35 U.S.C. 102(b) as allegedly being anticipated by U.S. Patent No. 2,904,875 to Trigg et al. ("Trigg"). It is respectfully asserted that, for at least the reasons provided herein below, Trigg fails to teach or suggest the recitations of the pending claims. Reconsideration is requested.

Independent claim 1, upon which claims 2-3, 5, 6, and 8 depend, is directed to a surface treatment method for removing a passive film on a surface of a metal material prior to heating with a temperature-maintaining process. The surface treatment method includes raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin.

Trigg describes adherent electrically insulating coating composition adapted to be applied to magnetic sheet material prior to winding or other fabricating operations of the magnetic material into cores or the like. See column 1, lines 39-42. A magnetic core is prepared by passing strips of magnetic material through an aqueous coating composition. See column 4, lines 8-38. The strips with the applied liquid coatings then are passed through a furnace to effect vaporization of the water and alcohol and to complete the curing of the resin to a thermoset material.

However, Trigg does not teach or suggest, “raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin,” as recited in amended independent claim 1. Instead, as described in Example III of Trigg, the strips with the applied liquid

coatings are passed through a furnace provided with heating elements to effect vaporization of the water and alcohol and to complete the curing of the resin to a thermoset material. The wound core is then placed in an annealing furnace and heated, whereby all traces of the alcohol, water, and melamine-formaldehyde resin and decomposition products thereof are removed. There is no teaching or suggestion in Trigg providing that the temperature of the material is raised, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin. Accordingly, Trigg fails to anticipate all the features recited in independent claim 1.

For at least the reasons discussed above, Applicants respectfully submit that Trigg fails to disclose or suggest all of the features of independent claim 1. Accordingly, Applicants respectfully request that the rejection of independent claim 1 be withdrawn.

Claims 2-3 and 5 depend from, and further limit, claim 1. Thus, each of claims 2-3, and 5 recites subject matter that is neither disclosed nor suggested in Trigg. It is, therefore, respectfully requested that the rejections of claims 2-3 and 5 be withdrawn.

Reconsideration and allowance of claims 1-3 and 5 are, thus, respectfully requested.

Claims 1 and 5-9 were rejected under 35 U.S.C. 102(b) as allegedly being anticipated by German application No. DD 296 967 to Lerche ("Lerche"). It is respectfully asserted that, for at least the reasons provided herein below, Trigg fails to teach or suggest the recitations of the pending claims. Reconsideration is requested.

Lerche generally describes eliminating surface conditions that inhibit thermal-chemical treatment in gaseous gas mixtures containing ammonia. Before the nitriding in gaseous gas mixtures containing ammonia, the surfaces of the ferrous material that are to be nitrided are coated, in the degreased state, with a mixture of 0.1-0.9 parts by mass of derivatives of melamine and/or organic compounds which form derivatives of melamine in the temperature range of 100-600 degree Celsius, and 0.9-0.1 parts of mass of carbonates and/or hydrogen carbonates. See page 4, lines 21-30.

However, Lerche does not teach or suggest that a metal material and the amino resin are heated together so that the amino resin is decomposed. In addition, Lerche does not clearly teach or suggest that a nitriding treatment or a carburizing treatment is performed after the removing of the passive film, were the amino resin is decomposed. In particular, Lerche is silent as to teaching or suggesting, "raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin," as recited in independent claim 1. Rather, as explained in Example 1 of Lerche, the test piece is coated by immersing the

piece in an aqueous solution containing melamine and sodium carbonate and potassium carbonate at a predetermined temperature of 95 degrees Celsius (203 degrees Fahrenheit) and at an immersion period. After the immersion, the test piece is dipped in ethanol to speed up the drying process. Both test pieces are then gas-oxynitrided together for 18 hours at a temperature of 570 degrees Celsius at a composition of the nitriding gas atmosphere corresponding to the nitriding characteristic 3. Nothing in Example 1, or any other portion of Lerche, provides a description or suggestion describing raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present. Also, Lerche is silent as to teaching or suggesting that during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin.

For at least the reasons discussed above, Applicants respectfully submit that Lerche fails to disclose or suggest all of the features of independent claim 1. Accordingly, Applicants respectfully request that the rejection of independent claim 1 be withdrawn.

Claims 5, 6, and 8 depend from, and further limit, claim 1. Thus, each of claims 5, 6, and 8 recites subject matter that is neither disclosed nor suggested in Lerche. It is, therefore, respectfully requested that the rejections of claims 5, 6, and 8 be withdrawn.

Reconsideration and allowance of claims 1, 5, 6, and 8 are, thus, respectfully requested.

In the Office Action, claims 1-3 and 5 were rejected under 35 U.S.C. 102(b) as allegedly being anticipated by, or in the alternative, under 35 U.S.C. 103(a) as allegedly being obvious over U.S. Patent No. 4,504,324 of Furuno ("Furuno"). It is respectfully asserted that, for at least the reasons provided herein below, Furuno fails to teach or suggest the recitations of the pending claims. Reconsideration is requested.

Furuno describes removing a spontaneously-formed oxide film on a treated aluminum plate by dipping the plate in a 7% aqueous sodium hydroxide solution at 55° C. for 3 minutes. After several more steps, the plate is then electrodeposited by using an electrodeposition bath of water soluble acryl melamine resin and passing a direct current at 30° C. for 2.5 minutes. The electrodeposition is a coating to cover the plate. Thereafter, the plate is baked at 190° C. for 30 minutes to obtain the coated plate (See Furuno at column 6, lines 65-68, and column 7, line 60, to column 8, line 11).

However, Furuno fails to teach or suggest, "raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present, and during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin," as recited in amended independent claim 1. Instead, Furuno describes that the plate is dipped in a diluted aqueous solution of commercial reagent grade nitric acid for 3 minutes, washed well with tap water, rinsed with deionized water and electrodeposited by using an electrodeposition bath of water

soluble aryl melamine resin. First, Furuno clearly sets forth that the plate is dipped in a commercial reagent grade nitric acid. There is no teaching or suggestion in Furuno of performing a nitriding treatment including a combination of ammonia gas and an RX gas. Furthermore, Furuno clearly indicates that after the plate is dipped in the nitric acid, the plate is then electrodeposited in a bath of soluble aryl melamine resin, which clearly teaches away from the amended features of independent claim 1. Furuno does not provide a description or suggestion describing raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at which the surface treatment is performed in a place in which amino resin is present. Also, Furuno is silent as to teaching or suggesting that during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin.

For at least the reasons discussed above, Applicants respectfully submit that Furuno fails to disclose or suggest all of the features of independent claim 1. Accordingly, Applicants respectfully request that the rejection of independent claim 1 be withdrawn.

Claims 2, 3, and 5 depend from, and further limit, claim 1. Thus, each of claims 2, 3, and 5 recites subject matter that is neither disclosed nor suggested in Furuno. It is, therefore, respectfully requested that the rejections of claims 2, 3, and 5 be withdrawn.

Reconsideration and allowance of claims 1, 2, 3, and 5 are, thus, respectfully requested.

Claim Rejection - 35 U.S.C. 103

Claims 8-9 were rejected under 35 U.S.C. 103(a) as allegedly being unpatentable over Furuno in view of Gredelj (“Characterization of aluminum surfaces with and without plasma nitriding by X-ray photoelectron spectroscopy”). The Office Action took the position that Furuno discloses or suggests all of the features of these claims, except for nitriding or carburizing being performed. The Office Action then cited Gredelj to remedy the deficiencies of Furuno. Claim 9 has been cancelled, therefore, the rejection to this claim is rendered moot. Applicants respectfully submit that each of claim 8 recites subject matter that is neither disclosed nor suggested in the combination of Furuno and Gredelj.

Furuno is outlined above. Gredelj describes that plasma hardening is used in surface hardening of steels. Plasma hardening can also be used for surface hardening of aluminum if a native aluminum oxide layer present on its surface can be removed by a pretreatment (see Gredelj at page 240, column 2).

Applicants respectfully submit that claim 8 recites subject matter that is neither disclosed nor suggested in the combination of Furuno and Gredelj. Claim 8 depend from, and further limit, claim 1. As discussed above, Furuno fails to disclose or suggest all of the features of claim 1. In addition, Gredelj does not cure the deficiencies of Furuno, as Gredelj fails to disclose or suggest, at least, “raising temperature of said metal material, which has not been subjected to a passive film removing treatment, to a temperature at

which the surface treatment is performed in a place in which amino resin is present, and during the raising of the temperature, removing the passive film by C, N and H which are liberated from the amino resin,” as recited in claim 1. Accordingly, Applicants respectfully submit that the combination of Furuno and Gredelj does not disclose or suggest all of the features of claim 8, and respectfully request that this rejection be withdrawn.

Reconsideration and allowance of claim 8 is, thus, respectfully requested.

Conclusion

For the reasons set forth above, it is respectfully submitted that each of claims 1-3, 5, 6, and 8 recites subject matter that is neither disclosed nor suggested in the cited references. It is, thus, respectfully requested that all of claims 1-3, 5, 6, and 8 be allowed, and that this application be passed to issuance.

If for any reason the Examiner determines that the application is not now in condition for allowance, it is respectfully requested that the Examiner contact, by telephone, Applicants’ undersigned representative at the indicated telephone number to arrange for an interview to expedite the disposition of this application.

In the event this paper is not being timely filed, Applicants respectfully petition for an appropriate extension of time. Any fees for such an extension together with any additional fees may be charged to Counsel's Deposit Account 50-2222.

Respectfully submitted,

/Alicia M. Choi/

Alicia M. Choi
Attorney for Applicants
Registration No. 46,621

Customer No. 32294
SQUIRE, SANDERS & DEMPSEY L.L.P.
14th Floor
8000 Towers Crescent Drive
Vienna, Virginia 22182-6212
Telephone: 703-720-7800
Fax: 703-720-7802

AMC:dk